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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,232	06/30/2003	Jae-Yong Park	053785-5133	1756

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EXAMINER	
MACCHIAROLO, PETER J	

ART UNIT	PAPER NUMBER
2879	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/608,232	PARK ET AL.	
	Examiner	Art Unit	
	Peter J. Macchiarolo	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 June 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17,32 and 33* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17,32 and 33* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application on 06/06/2007. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.1 14. Applicant's submission filed on 05/07/2007 has been entered. However, pending claims 1-17, 32 and 33 are not allowable as explained below. An action on the RCE follows.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-8, 12-17, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over previously cited Cok (USPN; 6911772; "Cok") in view of previously cited Yoneda et al (USPGPUB 20010026127; "Yoneda").

Regarding claim 1, Cok shows at least in fig. 4 an organic electroluminescent display device, comprising: first (12) and second (36) substrates bonded together (not shown), the first and second substrates having a plurality of pixel regions (24); a plurality of driving elements (14) on an inner surface of the first substrate (12) within each of the plurality of pixel regions (24); a

plurality of connection electrodes (not labeled vertical component of 18) contacting the driving elements (14); a black matrix (43L) on an inner surface of the second substrate (36) at a boundary of each of the plurality of pixel regions (24); a color filter layer (40) including red, green, and blue color filters on the inner surface of the second substrate (36), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (24); a planarization layer (32) surrounding end portions of the color filter layer (40) and the black matrix (43L); a first electrode (30) on an entire surface of the planarization layer (32); an organic electroluminescent layer (19) on the first electrode (30); and at least one second electrode (not labeled horizontal component of 18) on the organic electroluminescent layer (19) in at least one of the plurality of pixel regions (24), wherein the at least one second electrode (not labeled horizontal component of 18) contacts the connection electrodes (not labeled vertical component of 18).

Cok is silent to the color filters being formed directly on the inner surface of the second substrate.

However, Yoneda shows at least in figure 2 that color filters 22 may be formed directly on the inner surface of the second substrate. One would be motivated to this configuration to reduce the overall thickness of the device.

Furthermore, one of working skill using OLED technology will be able to suitably rearranging the color filter on the inner surface of the second substrate, and is a matter of obvious design choice. *In re Japikse,* 86 USPQ 70.

Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form Cok's color filters directly on the inner surface of the second substrate to reduce the overall thickness of the device.

Regarding claim 2, Cok is silent to the organic EL layer including an organic material that emits white light.

However, Yoneda teaches at least in paragraph 44 that using a white EL layer in combination with color filters simplifies the manufacturing process for a full-color display.

Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Cok with the organic EL material emitting white light to simplify the fabrication process.

Regarding claim 3, Cok shows at least in fig. 4 the organic electroluminescent layer (19) includes an organic material emitting red, green, and blue colored light corresponding to each of the red, green, and blue color filters (40).

Regarding claim 4, Cok shows at least in fig. 4 a plurality of sidewalls (17) on the first electrode (30) corresponding to the black matrix.

Regarding claim 5, Cok shows at least in fig. 4 and col. 5, ll. 24-41, the planarization layer (32) includes a transparent insulating material.

Regarding claim 6, Cok shows at least in fig. 4 and col. 6, ll. 42-59 the first electrode includes one of ITO and IZO.

Regarding claim 7, Cok shows at least in fig. 4 and col. 9, ll. 36-56 the at least one second electrode includes at least one of AL, Ca, Mg, and Li.

Regarding claim 8, Cok shows at least in fig. 4 and col. 6, ll. 22-40, the organic electroluminescent layer includes a hole-transporting layer and an electron-transporting layer.

Regarding claims 12-17, Cok and Yoneda recite the structure (see above rejections) but are silent to a manufacturing method of the device comprising the different forming steps.

However, one skilled in the art will recognize that manufacturing such a device will comprise Applicant's forming steps. Since only generic method steps and no specific method steps are claimed, the structure taught by Cok and Yoneda meets Applicant's recited method step limitations.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the organic EL display of Cok and Yoneda with the method of claims 12-14, 16, and 17 since the method steps are obvious in light of the resultant structure.

Regarding claim 32, Cok shows at least in fig. 4 an organic electroluminescent display device, comprising: a plurality of driving elements (14) on an inner surface of a first substrate (12) within each of a plurality of pixel regions (24); a plurality of connection electrodes (not

labeled vertical component of 18) contacting the driving elements (14); a black matrix (43L) on an inner surface of the second substrate (36) at a boundary of each of the plurality of pixel regions (24); a color filter layer (40) including red, green, and blue color filters on the inner surface of the second substrate (36), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (24); a planarization layer (32)surround end portions of the color filter layer (40) and the black matrix (43L); a first electrode (30) on an entire surface of the planarization layer (32); an organic electroluminescent layer (19) on the first electrode (30); and a plurality of second electrodes (not labeled horizontal component of 18) on the organic electroluminescent layer (19), each of the plurality of second electrode (not labeled horizontal component of 18)s in each of the plurality of the pixel regions (24), wherein each of the second electrode (not labeled horizontal component of 18)s contact one of the connection electrodes (not labeled vertical component of 18) and the first and second substrates are spaced apart from each other by a distance that includes the plurality of connection electrodes (not labeled vertical component of 18).

Cok is silent to the color filters being formed directly on the inner surface of the second substrate.

However, as discussed in the rejection of claim 1, Yoneda shows at least in figure 2 that color filters 22 may be formed directly on the inner surface of the second substrate. One would be motivated to this configuration to reduce the overall thickness of the device.

Furthermore, one of working skill using OLED technology will be able to suitably rearranging the color filter on the inner surface of the second substrate, and is a matter of obvious design choice. *In re Japikse,* 86 USPQ 70.

Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form Cok's color filters directly on the inner surface of the second substrate to reduce the overall thickness of the device.

Regarding claim 33, Cok shows at least in fig. 4 an organic electroluminescent display device, comprising: a plurality of driving elements (14) on an inner surface of a first substrate (12) within each of a plurality of pixel regions (24); a plurality of connection electrodes (not labeled vertical component of 18) contacting the driving elements (14); a black matrix (43L) on an inner surface of the second substrate (36) at a boundary of each of the plurality of pixel regions (24); a color filter layer (40) including red, green, and blue color filters on the inner surface of the second substrate (36), each of the red, green, and blue color filters corresponding to each of the plurality of pixel regions (24); a planarization layer (32)surround end portions of the color filter layer (40) and the black matrix (43L); a first electrode (30) on an entire surface of the planarization layer (32); a plurality of sidewalls on the first electrode (30) corresponding to the black matrix (43L); a plurality of organic electroluminescent layer (19) segments on the first electrode (30) between the sidewalls, each of the organic electroluminescent segments include a hole-transporting layer and an electron-transporting layer; and a plurality of second electrode (not labeled horizontal component of 18)s each on one of the organic electroluminescent layer (19) segments, each of the plurality of second electrode (not labeled horizontal component of 18)s in each of the plurality of the pixel regions (24).

Cok is silent to the color filters being formed directly on the inner surface of the second substrate.

However, as discussed in the rejection of claim 1, Yoneda shows at least in figure 2 that color filters 22 may be formed directly on the inner surface of the second substrate. One would be motivated to this configuration to reduce the overall thickness of the device.

Furthermore, one of working skill using OLED technology will be able to suitably rearranging the color filter on the inner surface of the second substrate, and is a matter of obvious design choice. *In re Japikse,* 86 USPQ 70.

Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to form Cok's color filters directly on the inner surface of the second substrate to reduce the overall thickness of the device.

Claims 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cok in view of Yoneda in further view of previously cited Kanai et al (USPN 6121727; "Kanai").

Regarding claims 9-11, Cok discloses the second electrode includes at least one of aluminum (Al), calcium (Ca), magnesium (Mg), and lithium (Li) is silent to the second electrode including a plurality of second electrodes.

However, Kanai teaches at least in figure 1, col. 2, ll. 6-30, and in comparative example 7 that when utilizing a second electrode of Mg or Ca in an organic EL device such as in Cok, an addition layer of lithium fluorine and aluminum provided on the second electrode allows for improved adhesion to the organic luminescent layer and prevents oxidation of the cathode.

The Examiner notes that the combined second electrode of Cok and Kanai would contact each of Cok's connection electrodes (vertical components of 18).

Therefore, in view of the above discussion, it would have been obvious to one having ordinary skill in the art at the time the invention was made to construct the device of Cok and Yoneda with the second electrode configuration of Kanai to allow for improved adhesion to the organic luminescent layer and prevents oxidation of the cathode.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Macchiarolo whose telephone number is (571) 272-2375. The examiner can normally be reached on 8:30 - 5:00, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571) 272-2475. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Respectfully submitted,

By Peter Macchiarolo

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